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National Highway Traffic Safety Administration
Docket Management, Room PL-401
400 Seventh Street, S.W.
Washington, D.C. 20590

**Event Data Recorders**
**Request for Comments**
**67 FR 63493, October 11, 2002**

Advocates for Highway and Auto Safety (Advocates) files these comments in response to the National Highway Traffic Safety Administration's (NHTSA) notice and request for comments regarding Event Data Recorders. The main issue addressed in the notice is the "future role the agency should take related to the continued development and installation of EDRs in motor vehicles." 67 FR 63493 (Oct. 11, 2002). In addition, the agency notice poses a series of questions on EDR-related topics.

NHTSA is a regulatory agency with statutory authority to protect the public by mandating safety standards, conducting research, and engaging in data collection that will enhance safety and reduce traffic crashes on America's roads and highways. It is the agency's duty to advance public safety by requiring performance-oriented standards, and the use of equipment, that reflect the state-of-the-art in vehicle engineering or design. The agency's authority extends to requiring the use of established or emerging technology. Advocates is convinced that NHTSA should exercise its authority to require the installation of EDRs in all newly manufactured motor vehicles. The agency must exercise its discretion and authority to bring uniformity and standardization to real-world crash data collection in order to promote the public's interest in improved highway safety. To fulfill that end, the agency should determine the use or uses for which EDR data can provide a safety benefit, *e.g.*, vehicle and highway research, emergency medical response, heavy truck operation, and establish appropriate requirements for the collection of a set or sets of data elements to further each purpose. The agency will also have to adopt technical standards for data recordation, storage, and accessibility that provide a simple, universal means for EDR data retrieval. Finally, the agency will have to ensure that EDR data is collected by state and local law enforcement agencies for transmission to a national database.

**Potential Value of Event Data Recorders**

Research literature and practical experience make it abundantly clear that data obtained from EDRs after crashes and near-crash events can be used to substantially improve traffic safety. This type of data is already being used by vehicle manufacturers to confirm the proper functioning or failure of specific items of vehicle equipment, and to adjust the performance of air bags and restraint systems.

Data obtained from EDRs in individual crashes also provides detailed, objective information for crash reconstruction investigations. Critical information such as vehicle speed and change in velocity, seat belt use, braking, timing of air bag deployment can be ascertained from EDR data rather than estimated based on post-crash eyewitness accounts or conclusions derived from circumstantial evidence. The specificity of EDR data will increase the capacity for detailed research and investigation of particular types of crashes and special investigations. EDR data would enhance the specificity of the information available for analysis, for example, as part of the National Automotive Sampling System – Crashworthiness Data System (NASS/CDS). NHTSA has already begun collecting EDR data in NASS/CDS investigations.

On a broader scale, a nationwide database of crash-specific vehicle performance and driver input information can provide a real-world basis for future safety initiatives and vehicle design improvements. Aggregate data collected from EDRs across a large number of crashes and near-crash incidents can support research for safer vehicle and highway design, improved crashworthiness countermeasures, and to guide the future development of crash avoidance technology. Such data can augment the Fatal Analysis Reporting System (FARS) by providing greater specificity and detail about fatal crashes to complement the data already collected in FARS.

In more immediate terms, availability of EDR data will improve emergency medical response for crash victims. EDR data for certain crash parameters, such as vehicle speed at time of impact, occupant belt use, crash mode or angle of impact, yaw, etc., provide critical information that can expedite emergency medical response to a serious crash. Immediate access to such crash information facilitates appropriate medical response at an earlier point in time. Treatment-related information should be accessible to medical responders at the scene, or by non-medical law enforcement personnel who can transmit the data to medical response dispatchers. Eventually, treatment-related EDR data could be transmitted by Automatic Crash Notification (ACN) systems in order to ensure that the emergency medical responders are aware of pertinent crash-specific information.

The potential safety benefits of EDR technology were summarized in the findings of the NHTSA EDR Working Group on light vehicle data recording. *Event Data Recorders, Summary Findings by the NHTSA EDR Working Group*, *Final Report*, Findings, Section 11, p. 67, U.S. DOT (Aug. 2001) (NHTSA EDR Report). The report

states that EDRs hold promise of potential safety applications for all types of motor vehicles. According to the report, real-world crash data would be extremely helpful in conducting research to evaluate crash avoidance countermeasures, improving occupant protection systems, and monitoring safety equipment and safety systems. The report further states that by providing accurate data about the vehicle systems, the driver and occupants during pre-crash, crash, and post-crash events, EDR data will be provide a basis for developing safer vehicles and reducing crash-related deaths and injuries. *Id.*

**Event Data Recorders Are Already In Widespread Use**

In one form or another, EDRs are already in widespread use in transportation. EDRs are currently mandated or are otherwise used in several modes of transportation. Flight data recorders, a type of EDR specifically designed for use in commercial and passenger aircraft, have been mandated for use for over four decades. Likewise, "black box" recording instruments are required on railroad locomotives and are now used in merchant and passenger shipping. In addition, the National Aeronautics and Space Administration (NASA) uses multiple sensors and flight and data recorders on the Space Shuttle. These recording instruments have two purposes: 1) in accident reconstruction to assist in identifying the cause or causes and contributing factors in a catastrophic failure and, 2) in research to identify trends or patterns that could improve operation and design to avoid future crashes. Thus, EDR-type technology is being used to improve safety for transportation modes that involve high levels of financial investment, but comparatively low levels of fatalities and personal injuries. Installation of EDRs has not been required on motor vehicles even though highway traffic crashes annually account for almost 95 percent of transportation fatalities and 98 percent of transportation injuries in the U.S.[1] From a safety perspective, the use of EDRs on both light and heavy motor vehicles holds far more potential to save lives and prevent crashes than all other transportation modes combined.

In fact, millions of motor vehicles are already equipped with sensors, diagnostics, electronic control modules and computer processing hardware/software that record one or more aspects of vehicle and equipment operation including air bag deployment, seat belt engagement, vehicle speed, engine revolutions, brake status and use, as well as other vehicle equipment conditions and operational status. Many of the data recording devices currently in use are component-specific, *e.g.*, airbag and traction control system status

[1] The vehicle manufacturing industry also involves significant levels of financial investment. From the standpoint of the light vehicle industry, passenger vehicle production and sales are a major component of the U.S. economy both in terms of domestic production facilities, including supplier contracts and labor, and in terms of total annual sales. From the standpoint of consumers, after the purchase of a new home, the cost of a vehicle represents the second largest purchase that consumers are likely to make. Commercial motor vehicle production and sales likewise amount to a large collective investment.

sensors and diagnostic modules. However, vehicle manufacturers are also linking equipment sensors located throughout the vehicle to a central memory to more comprehensively record and store a wide range of vehicle component status and operating data. As a result, and to varying extents, EDR technology has been installed in some form in all current production vehicle models, either with or without the knowledge of the original purchaser. Manufacturers of light vehicles have access to the EDR data with the agreement of the owner when repairing vehicles, after repurchasing a vehicle post-crash, or through litigation. Thus, without any federal requirement, EDRs have become ubiquitous on a voluntary basis, and the data is being accessed and used by vehicle manufacturers for research, repair and other purposes.

At the present time, the collection and use of EDR data serves private interests. The use of EDR data to advance public safety is only a secondary consideration. NHTSA collects EDR data, when and where available, as part of the NASS/CDS investigations and the NHTSA Special Crash Investigations (SCI). EDR data could also support the research being conducted under the auspices of NHTSA as part of the Crash Injury Research and Engineering Network (CIREN). However, the agency privately contracts with each vehicle owner to obtain access to the EDR data.[2]

In addition, manufacturers of heavy trucks and other commercial motor vehicles voluntarily install on-board recorders, which are EDR-type technology commonly referred to as "black boxes," to serve numerous purposes of their customers, especially fleet operators, including real-time tracking of shipments, routing, recordation of hours-of-service requirements, engine on/off time, and to record and monitor other aspects of vehicle and driver operation. For commercial vehicles the potential use and data collection includes crash-related information such as would be collected by an EDR. But the application for data collection in commercial vehicles is broader than passenger vehicles, extending to the type of real-time information that is collected by an on-board recorder, which is not being considered for non-commercial vehicles. Since EDRs are required in several modes of transportation, and are being voluntarily introduced in light and heavy motor vehicles, the benefits of this technology should be harnessed to improve traffic safety for the public.

Since EDRs have been voluntarily installed and are being used in many vehicles, the data acquired from EDRs has already been used in crash investigation and reconstruction, as well as in litigation. Societal concerns regarding EDR data ownership and privacy rights have already been raised. Thus, regardless of whether EDRs are voluntarily introduced in greater numbers by manufacturers, or are required by federal regulation, the issues of privacy, ownership, control and use of EDR data have already been broached. Although NHTSA cannot resolve contentious legal issues and general privacy concerns that the existence of EDR data has spawned, the agency can ensure that EDR data can be collected to serve the public interest in improving traffic safety.

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[2] NHTSA EDR Report, Section 8.3.1, p. 53.

**The Role of the National Highway Traffic Safety Administration**

In the National Motor Vehicle and Traffic Safety Act of 1966 (Safety Act), Pub. L. 89-563 (Sept. 9, 1966), Congress directed the Secretary of Transportation, and by designation NHTSA, to conduct research and collect information to carry out the purposes of the Safety Act. 49 U.S.C. § 30168(a). The law specifically states that the research shall include collecting data to determine the relationship between the performance of motor vehicles and motor vehicle equipment and vehicle crashes, deaths, and injuries that occur in motor vehicle crashes. *Id.* This research authority was intended to permit gathering information that can improve traffic safety.[3] NHTSA's role is to exercise that research authority, and to harness technology on a national basis, in order to accomplish that purpose. Thus, since EDR data can provide real-world data on the precise question of the relationship between motor vehicle performance and crashes, deaths and injuries, requiring the installation of EDRs in all new light and heavy motor vehicles, and the collection of EDR data in a national database, will further the research goals of the statute.

The National Transportation Safety Board (NTSB) evidently believes that NHTSA should take the initiative to collect EDR data. NTSB has issued a recommendation to NHTSA to "[d]evelop and implement, in conjunction with the domestic and international manufacturers, a plan to gather better information on crash pulses and other crash parameters in actual crashes, utilizing current or augmented sensing and recording devices." NTSB Recommendation H-97-18 (1997). NTSB has since issued similar recommendations to NHTSA regarding data collection for buses. NTSB Recommendation H-99-53 and H-99-54 (1999).

In addition, NHTSA has issued two reports regarding the use and potential benefits of EDRs in both light vehicles, NHTSA EDR Report, and heavy motor vehicles, *Event Data Recorders, Summary Findings by the NHTSA EDR Working Group*, *Volume II, Supplemental Findings for Trucks, Motorcoaches, and School Buses*, *Final Report*, NHTSA, DOT HS 809 432 (May 2002).[4] The reports made clear that, at current levels of installation, there is an insufficient number of EDRs in vehicles that are involved in crashes to provide enough data for analysis. The report on light vehicles also found that the lack of uniformity in the kinds of data that are being recorded in different EDR

[3] The Secretary of Transportation also has authority under 23 U.S.C. § 403, to conduct research on all aspects of highway safety and traffic conditions including highway and driver characteristics and crash investigations.

[4] In addition, the Federal Motor Carrier Safety Administration has issued a report on data collection by electronic control modules in commercial vehicles. *A Report to Congress on Electronic Control Module Technology for Use in Recording Vehicle Parameters During a Crash*, FMCSA, DOT-MC-01-110 (Sept 2001).

systems, as well as the lack of a common means of access to the data, are significant obstacles to the acquisition and use of real-world crash data to improve safety.

NHTSA's role as the federal traffic safety agency must be to ensure that EDR technology can be used to further national safety goals. Federal regulation requiring vehicle manufacturers to install EDRs that will record and collect crash data is well within the jurisdiction and authority of the agency provided by its enabling legislation. Agency regulations would have to address a number of issues and different aspects of EDR technology. NHTSA must require that all new vehicles, including light vehicles, heavy trucks and buses, be equipped with EDRs that collect a specified minimum set of data elements. Furthermore, agency rules must require that access to EDR data must be by a uniform technology or interface.

Requiring EDRs in all new vehicles is both necessary and practicable to ensure the type and amount of real-world crash data that would be useful for safety research purposes. The NHTSA EDR Report points out, however, that "[t]he degree of benefit is directly related to the number of vehicles operating with an EDR and the current infrastructure's ability to use and assimilate these data." NHTSA EDR Report at 67. NHTSA's leadership is needed for precisely these reasons, to ensure that all vehicles are equipped with EDRs, and that minimum, uniform data is collected for analysis. If the goal of a national crash database is appropriate to assist NHTSA in fulfilling its safety mission, then a regulation requiring EDRs is within the authority of the agency. Indeed, this is precisely the type of minimum performance requirement Congress expects NHTSA to take on its own initiative in order to ensure sufficient information is being recorded and collected for a national crash research database to fulfill the agency's research mission and to improve vehicle and highway safety.[5]

Regulatory action by NHTSA is necessary to bring uniformity and coherence to the technological issues mentioned above. The agency must establish a performance standard for the set of data elements that all EDRs should collect. At present, each manufacturer collects different types and amounts of data, some only from air bag modules, others from a wide variety of vehicle sensors and equipment. There is currently no agreement among manufacturers regarding what data should be recorded by EDRs.[6]

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[5] Although a regulation requiring EDRs would not necessarily have to meet the criteria of a motor vehicle safety standard, EDRs do meet the general requirements that a safety standard "practicable, meet the need for motor vehicle safety, and be stated in objective terms." 49 U.S.C. § 30111(a).

[6] The Institute of Electrical and Electronic Engineers (IEEE), Committee P1616, is developing a voluntary technical standard for EDRs. The committee has decided not to include in the standard any requirement for a prescribed set of data elements.

In order to ensure that each vehicle records information that would be valuable for crash research and analysis, it is necessary for NHTSA to prescribe, by rule, a minimum required EDR data set.

In addition, each vehicle manufacturer currently installing EDRs uses a different proprietary system for accessing the data installed in vehicles produced by that manufacturer. The need to use unique hardware and/or software to download the data prevents others from acquiring that data without the specific proprietary technology. While such a system may serve the needs of individual manufacturers, and to some extent may protect individual ownership and privacy interests, it presents an obstacle to general data collection and analysis for public safety research. The specifications for a uniform interface are best developed by technical experts in an open forum. NHTSA can either consider adopting a pre-existing technical standard for a uniform interface, or develop its own standard. In either case, the standard should be promulgated through public meetings and informal rulemaking.[7]

NHTSA already has sufficient authority to require installation and collection of EDR data and no additional legal authority is needed. Neither should NHTSA have to seek permission of the owner to obtain EDR data in each and every crash or investigation. Currently, state and local law enforcement officers have the legal authority to investigate crashes, obtain information, conduct tests, and obtain physical evidence. Police reports, and FARS data, are generated in this manner based on existing state and local police powers and authority. It is likely that existing authority would also cover access to EDR data, although in some states further legislation or clarification of police investigative authority may be required. NHTSA can require, by regulation and through existing cooperative agreements, that state and local officials provide EDR data for a national crash information database. Just as with FARS data, the agency can ensure that state and local authorities will transmit EDR data to the agency for deposit into the national database. However, in order to accomplish this end, the agency must first ensure that EDR data can be retrieved easily and conveniently through uniform technology, and that state and local officers can, for example, download EDR data into a laptop computer or a hand-held personal digital assistant (PDA), where it can be stored for later transmission to the national database.

Finally, as is discussed in the following section, NHTSA must assure the public that the use of EDR data by the agency will, as with FARS, be coded in order to protect individual privacy, and to assure the public that EDR data will be subject to the restrictions of the federal Privacy Act. While the issues involved in requiring EDR technology and data collection raise complex technical and legal concerns, agency regulations to accomplish these goals are well within its research authority for collection of crash data.

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[7] As part of the effort to draft a voluntary technical standard, the IEEE P1616 Committee is attempting to develop a single, uniform means by which to access data from all EDRs..

Advocates suggests that NHTSA begin rulemaking in the near future to: require installation of EDRs; determine what information, at a minimum, should be collected; obtain information regarding a uniform EDR interface; determine technical specifications for recording and storing EDR data; and to gather information regarding the creation of a national EDR database that would be available to the public. Any national database should contain only coded information that protects the privacy of the individuals involved in reported crashes.

Initially, NHTSA should collect EDR data in all fatal crashes, which would also be used to augment existing FARS data. However, since fatal crashes are not necessarily representative of all crashes in which serious injuries occur, the agency should collect EDR data in all crashes that result in the hospitalization of one or more persons, including non-occupants. Ultimately, collection of EDR data would, if possible, extend to all tow-away crashes. Such a national database would provide the agency, the public, and the research community with a rich source of real-world data and information concerning crash events.

**Concerns Regarding Privacy Are Not An Impediment To NHTSA Regulation**

The voluntary introduction EDR technology has given rise to privacy concerns regarding the use of vehicle data. Public concern about the use, or misuse, of such data arises in a number of contexts, including access to and use of the data by emergency medical responders, police investigators, the judicial system, auto manufacturers, motor carriers, insurers, and others. These privacy concerns derive from the existence of EDR data which, to date, have been developed and collected as the result of voluntary actions by motor vehicle manufacturers. Regardless of federal regulation, privacy issues will remain a concern as more and more diagnostic and event data are recorded by vehicle systems and EDRs. Thus, the privacy concerns regarding EDRs are separate from, and independent of, any eventual federal regulation requiring the collection of EDR data.

Assuming that vehicle owners also own any data in the vehicle, their privacy right in the EDR data may be protected in everyday situations. However, vehicle owners may have to give up that right in order to obtain vehicle service or repair, if access to EDR or equipment diagnostic is necessary to provide service. Moreover, privacy rights will likely have to yield in the event of a crash investigation or litigation. A federal regulation requiring installation of EDRs in every motor vehicle, and requiring that certain data be collected, may increase the amount of data that is available and contested, but it will not affect the legal rights of parties to obtain available information.

NHTSA has no jurisdiction or authority to prevent the use of EDR data for many purposes that the public may consider intrusive. For example, NHTSA has no authority to prohibit the use of EDR data from use as evidence by the police during a crash investigation. Neither can NHTSA restrict the use of EDR information required by legal process or judicial order. The agency can only ensure that EDR data it obtains for use as

part of a national data base will be coded to protect individual privacy, and that privacy will be protected when the data is deposited in a national database maintained by the agency.

**Ownership of EDR Data Is Not An Impediment to NTSA Regulation**

Finally, although NHTSA needs to address the legal question regarding the ownership of EDR data, the agency only needs to clarify the existing legal right of state and local authorities to acquire relevant information in the course of a traffic crash investigation. Since NHTSA will acquire EDR data for the purpose of populating a national crash information database, the agency will generally receive information that has previously been obtained by state and local law enforcement officials pursuant to an investigation following a crash, or other near-crash event (*e.g.*, air bag deployment), to which the police have responded. As with any other information currently collected for police traffic incident reports, state and local law enforcement personnel will obtain EDR data in the course of pursuing a traffic investigation. In such cases, law enforcement officials have the authority to inspect and photograph the vehicle or vehicles involved, interview witnesses, conduct tests of the vehicle or equipment, and take other actions, including impounding the vehicle, either at the crash scene or afterwards. Thus, the information received by NHTSA for FARS is obtained by state and local officials pursuant to state law providing those officials with investigative powers at traffic crash scenes. EDR evidence would be obtained in the same manner, and requires no new federal legislation or agency authority.[8]

**EDR Data Collection for All Vehicles and Emergency Medical Treatment**

Advocates supports collecting EDR data for all types of vehicles, with the understanding that the data collected to provide a sufficient amount of information needed for safety analysis of crashes involving passenger vehicles will differ from the data collection need for buses and medium and heavy trucks. As mentioned above, far more data is already being collected voluntarily in commercial vehicles to increase efficiency and allow for greater monitoring and management of commercial fleets. The two NHTSA EDR Working Groups for light vehicles and for buses and trucks, both concluded that universal installation of EDRs that collect a minimum set of data and that can be accessed by a uniform technology is reasonable, practicable, and appropriate for each type of vehicles. Therefore, requiring similar EDR technology that collects different types and amounts of data is within the authority of the agency.

The data collection required to expedite emergency medical response after a crash, however, presents a different set of issues. This type of data would have to be required in all vehicles, including potentially, motorcycles. NHTSA can and should

[8] Federal law authorizes federal grants to the states and interstate authorities to carry out motor vehicle safety research. 49 U.S.C. § 30168(a)(2).

ensure that treatment-related EDR data is collected so that it can be available for emergency medical response. This presents both a technological issue of whether data useful for medical treatment should be physically separated from other, non-medically useful data, and what legal and privacy rights are involved in divulging such data to emergency responders.

With respect to the technological issue, it may be possible to cordon off a subset of data that is relevant to medical treatment from other data, so that emergency responders only access the data they need to provide treatment. Alternatively, it may not be feasible or, more likely, cost effective, to devise separate EDR data storage for limited purposes. In that event, if emergency medical responders are given access to EDR data they will obtain data that is medically relevant and data that is not. This creates concerns regarding data that is not relevant for medical treatment but that has been divulged to third parties. NHTSA can require separate collection of medically relevant data, however, the legal issues and privacy rights regarding access to medical and other data is the jurisdiction of state legislatures. States could by law explicitly sanction the release of such data for emergency treatment and provide appropriate privacy safeguards for the use of the data in that manner, *e.g.*, confidentiality or subject protection as privileged information. The legal issues and privacy concerns regarding EDR data in general are already being raised as a result of the voluntary introduction of this type of data. The use of medical information for emergency treatment will also become an issue as access to treatment-related data becomes available and accessible. These issues will be sorted out by society and are not within the purview or authority of NHTSA to decide by regulation. NHTSA's role is to ensure that technology and data that are otherwise being used for other purposes are harnessed to improve traffic and public safety.

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